

**Notice of Allowability**

Application No.

10/755,746

Examiner

Stephen W. Smoot

Applicant(s)

XIANG, QI

Art Unit

2813

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to applicant's RCE filed on 20 December 2006.
2. ☒ The allowed claim(s) is/are 1-18 and 20.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_



Stephen W. Smoot  
Patent Examiner  
Art Unit 2813

## **DETAILED ACTION**

This Office action is in response to applicant's RCE filed on 20 December 2006.

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's amendment filed on 20 December 2006 has been entered.

### ***Response to Arguments***

2. Applicant's arguments, see pages 6-7, filed on 20 December 2006, with respect to claims 1-18, 20 have been fully considered and are persuasive. It is agreed that these claims as currently amended are supported by the earlier filed parent applications and, accordingly, Ohnishi et al. (US 7,029,988 B2) does not qualify as prior art under 35 USC 102(e). The rejections of claims 1-4, 6-12, 17-18, 20 have been withdrawn.

***Election/Restrictions***

3. Claims 5, 13-16, previously withdrawn from consideration as a result of a restriction requirement, require all the limitations of an allowable claim (either independent claim 1 or independent claim 9). Pursuant to the procedures set forth in MPEP § 821.04(a), **the restriction requirement among species directed to a capping layer, as set forth in the Office action mailed on 03 October 2005, is hereby withdrawn** and claims 5, 13-16 are hereby rejoined and fully examined for patentability under 37 CFR 1.104. In view of the withdrawal of the restriction requirement, applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application. Once the restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See *In re Ziegler*, 443 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

***Allowable Subject Matter***

4. Claims 1-18, 20 are allowed.

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5. The following is an examiner's statement of reasons for allowance:

- Claims 1-8 are allowed because the prior art of record does not teach or suggest, in combination with the other claim limitations, a method of manufacturing an integrated circuit having trench isolation regions in a substrate that includes the steps of providing a semiconductor or metal layer directly in contact with trench sidewalls such that the semiconductor layer or metal layer is in direct contact with a silicon-germanium layer and an overlying strained silicon layer and converting the semiconductor or metal layer into oxide liners corresponding to plural trenches;
- Claims 9-16 are allowed because the prior art of record does not teach or suggest, in combination with the other claim limitations, a method of forming shallow trench isolation regions in a strained semiconductor layer that includes the steps of forming trenches in a strained semiconductor layer, providing a conformal semiconductor layer in the trenches in direct contact with the strained semiconductor layer, and oxidizing the conformal semiconductor layer to form a liner in the trenches; and
- Claims 17-18, 20 are allowed because the prior art of record does not teach or suggest, in combination with the other claim limitations, a method of forming a liner in a trench that includes the steps of providing a semiconductor layer in the trench such that the semiconductor layer is in direct contact with a germanium containing layer and an overlying strained layer and converting the

semiconductor layer into an oxide liner such that substantially all of the semiconductor layer is consumed during the conversion.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen W. Smoot whose telephone number is 571-272-1698. The examiner can normally be reached on M-F (8:00 am to 4:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr. can be reached on 571-272-1702. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SWS